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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,931	02/12/2001	James R. Fincke	B-026	1785

7590

01/10/2003

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EXAMINER

STRICKLAND, JONAS N

ART UNIT	PAPER NUMBER
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1754

8

DATE MAILED: 01/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/781,931

Applicant(s)

FINCKE ET AL.

Examiner

Jonas N Strickland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-87 is/are pending in the application.
- 4a) Of the above claim(s) 20-32, 47-49, 51-55 and 61-87 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19, 33-46, 50 and 56-60 is/are rejected.
- 7) ☒ Claim(s) 57 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 1-18 and 33-61 in Paper No. 7 is acknowledged.

Applicant's election of "metal oxide" as the species of the metal containing compound and "natural gas" as the species of hydrocarbon to be examined is acknowledged.

### ***Claim Objections***

2. Claim 57 is objected to because of the following informalities: Applicant recites "titanium oxide". It is suggested that Applicant recite – titanium dioxide --. Appropriate correction is required.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-6, 8-14, 17-19, 33-46, 50 and 56-60 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 31-40 and 43-53 of U.S. Patent No. 5,749,937.

Although the conflicting claims are not identical, they are not patentably distinct from each other because Detering et al. claims a method for thermally converting one or more reactants in a thermodynamically stable high temperature gaseous stream to a desired end product in the form of a gas or a ultrafine solid particle, comprising the steps of introducing a reactant stream at one axial end of a reaction chamber; rapidly heating the incoming reactant stream as the reactant stream flows axially toward the remaining end of the reactor chamber; the reactor chamber having a predetermined length sufficient to effect heating of the gaseous stream to a selected reaction temperature at which a desired end product is available as reaction product at a location adjacent the outlet end of the reactor chamber; passing the gaseous stream through a restrictive convergent-divergent nozzle arranged coaxially within the remaining end of the reactor to cool the gas stream by converting thermal energy to kinetic energy as a result of adiabatic and isentropic expansion as it flows axially through the nozzle and minimizing back reactions, thereby retaining the desired end product and then cooling and slowing the velocity of the desired end product and remaining gas stream exiting from the nozzle. Detering also claims introducing a stream of plasma arc gas between the electrodes of a plasma torch including at least one pair of electrodes positioned at the inlet end of an axial reactor chamber; cooling the gas stream and separating the desired end products from the gases remaining in the cooled gaseous stream (see

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claims 31 and 45). Detering continues to claim wherein the desired end product is acetylene and the reactants are methane and hydrogen (see claim 44). Detering continues to claim wherein the desired end product is titanium dioxide and the reactants are titanium tetrachloride and oxygen (see claim 43).

With respect to the carbon layer, it would have been obvious to one of ordinary skill in the art, since Detering claims adding carbon (claims 51 and 52). Detering also claims an inert gas reactant (claim 56). Furthermore, since Detering claims the method for converting one or more reactants to a desired end product using an axial reactor having a length and sufficient operating temperature for producing a desired product stream, it would have been obvious to one of ordinary skill in the art to expect the method of Detering to be capable of producing a hydrogen desired end product stream, with respect to claim 3.

With respect to claims 13 and 14, it would have been obvious to have a cooling layer comprised of cool water in order to prohibit degradation, because Detering claims wherein cooling is conducted to inhibit the formation of equilibrium products (see claim 49), which is known to cause degradation.

5. Claims 7, 15, and 16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 31-40 and 43-53 of U.S. Patent No. 5,749,937 in view of Davis et al. (US Patent 4,335,080).

Applicant claims with respect to claims 7, 15, and 16 wherein the reaction zone is maintained at a temperature between about 1500°C and about 2500°C.

Detering et al. does not claim maintaining a reaction zone maintained at a temperature between about 1500°C and about 2500°C.

However, Davis et al. teaches an apparatus for producing selective particle sized oxides, such as titanium dioxide (col. 1, lines 49-59). Davis teaches maintaining a sufficient temperature for each particular oxide, wherein the temperature may be 1975°C (col. 11, lines 3-10).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teaches of Detering et al., by maintaining a sufficient reaction temperature for the desired end product as taught by Davis et al., because Davis et al. teaches maintaining a sufficient temperature for each particular oxide or desired end product, wherein the temperature may be 1975°C. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art would have expected a process for producing metal oxides using a plasma environment as taught by Davis et al., to be similarly useful and applicable to a process for producing metal oxides in a plasma environment as taught by Detering et al.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N Strickland whose telephone number is 703-306-5692. The examiner can normally be reached on M-TH. 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

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872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0661.



Jonas N. Strickland  
January 7, 2003



WAYNE A. LANGEL  
PRIMARY EXAMINER